

cite

(12) UK Patent Application (19) GB (11) 2 221 742⁽¹³⁾A
(43) Date of A publication 14.02.1990

(21) Application No 8917259.7

(22) Date of filing 28.07.1989

(30) Priority data
(31) 8809929 (32) 04.08.1988 (33) DE

(71) Applicant
Hubert Wallermann
Eisenwarenfabrik und Gesenkschmiede GmbH & Co,
(Incorporated in the Federal Republic of Germany)
Roth 4, D-5983 Balve 2-Garbeck, Federal Republic
of Germany

(72) Inventor
Hubert Wallermann

(74) Agent and/or Address for Service
Page White & Farrer
54 Doughty Street, London, WC1N 2LS,
United Kingdom

(51) INT CL⁴
F16G 15/00, B65C 1/12

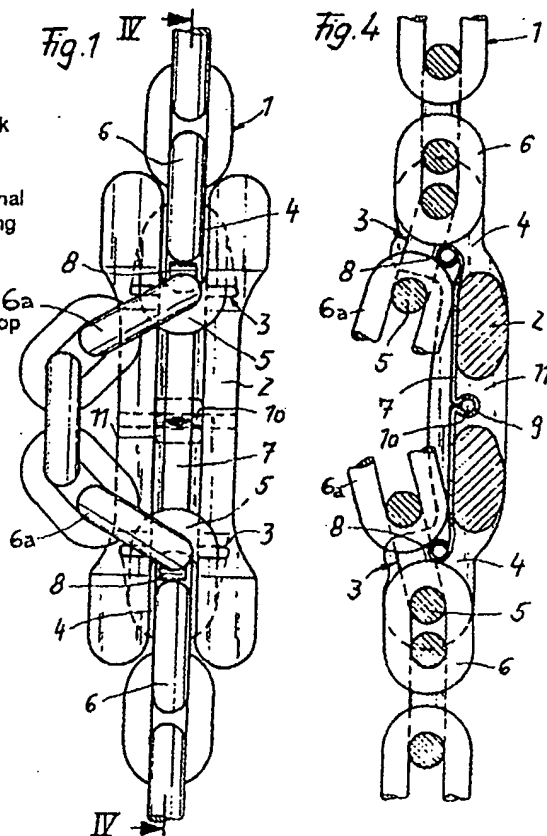
(52) UK CL (Edition J)
F2Q Q53
U1S S1868

(56) Documents cited
GB 2127129 A

(58) Field of search
UK CL (Edition J) F2Q
INT CL⁴ F16G
Online databases : EDOC and WPI

(54) Chain shortening device

(57) A chain shortening device consists of an elongate member (2) which can be fastened to a chain and which comprises at each end a pocket (3) to receive a chain link (5) which is substantially parallel to the plane of the elongate member, which pockets are arranged in mirror-image fashion to each other, each with a longitudinal slot (4). A leaf spring (7) in the form of a double-leg spring extends over approximately the entire length of the member (2) and is arranged with catches (8) formed at both its ends projecting into the slots (4) and is shaped approximately in the middle of its length into a bearing loop (9) through which a bolt (10) mounted in the member (2) passes.



GB 2 221 742 A

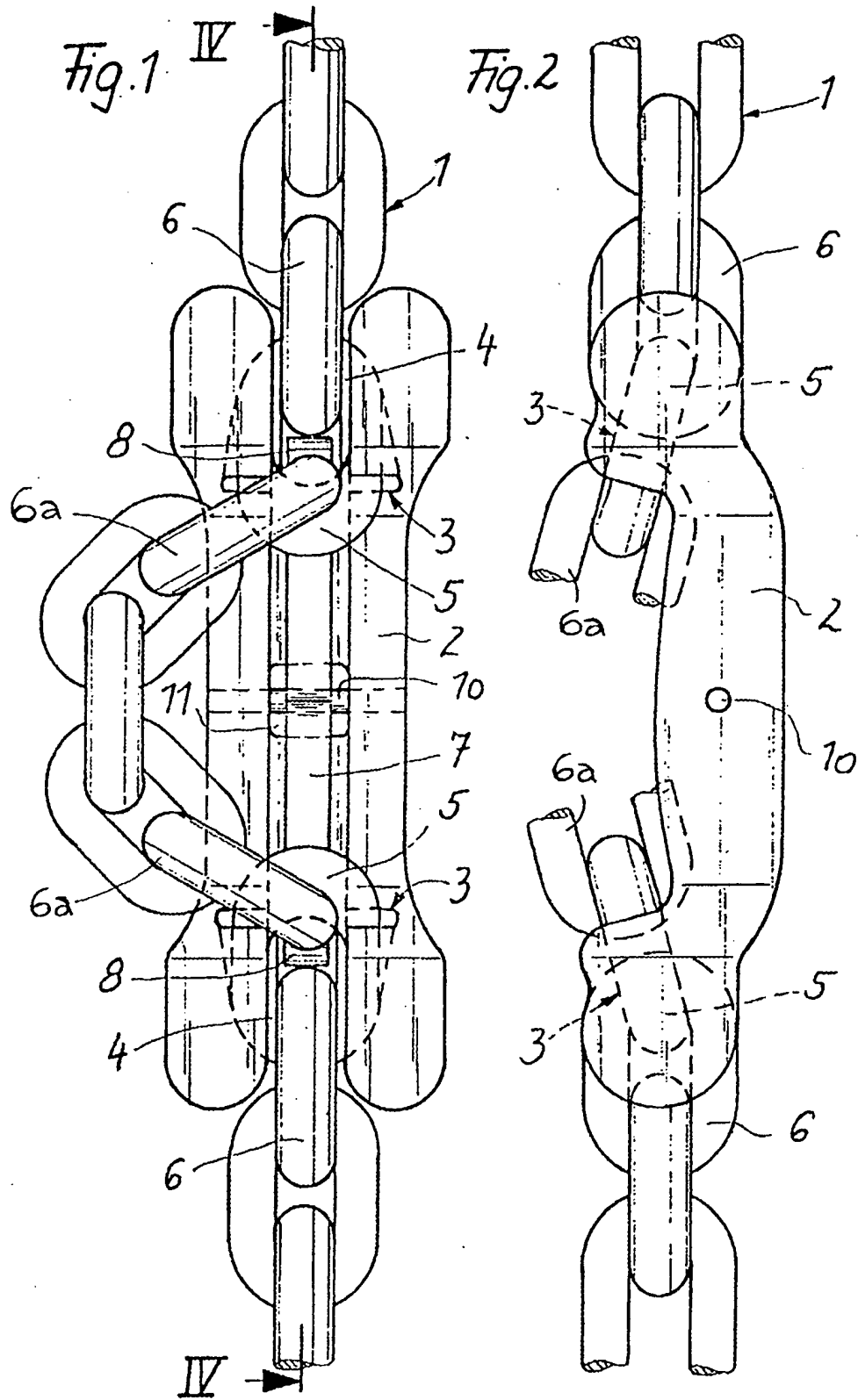


Fig. 3

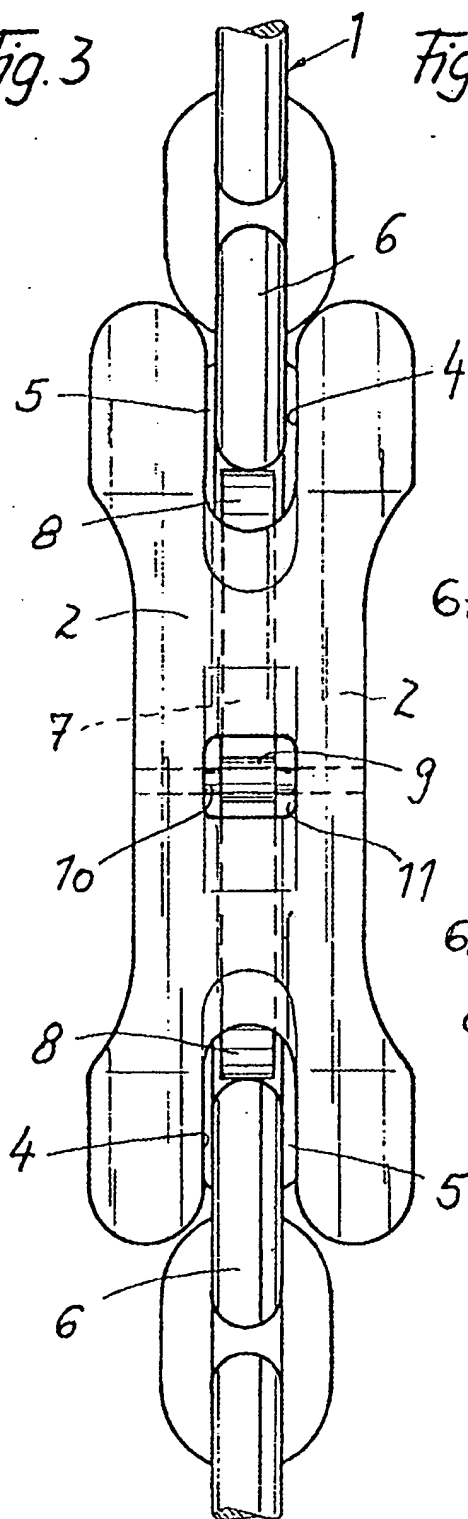
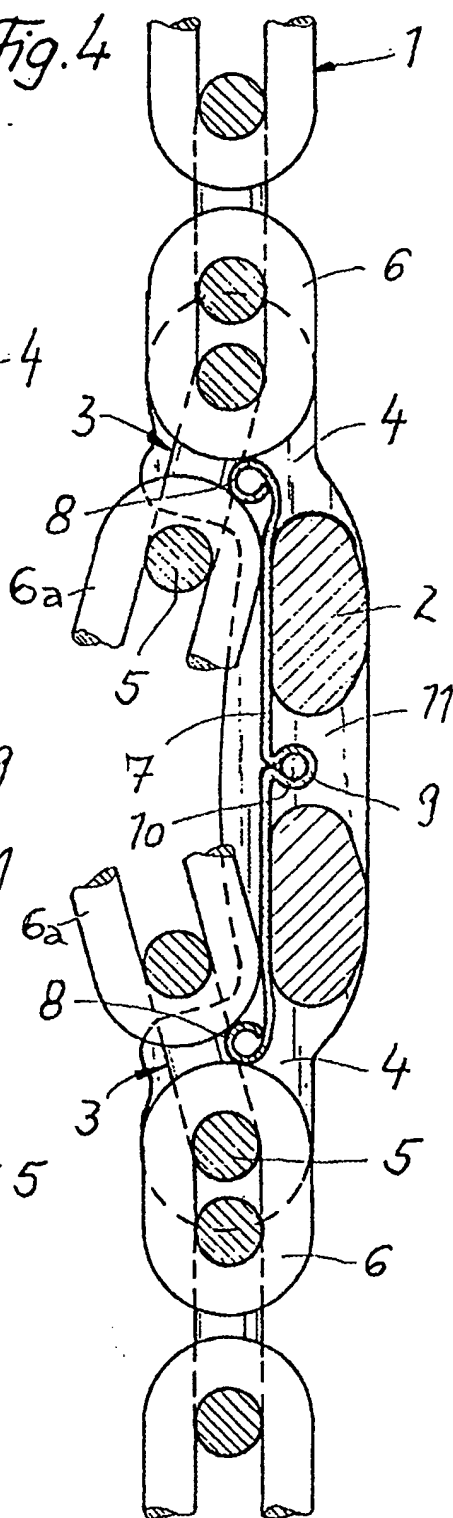


Fig. 4



Chain shortening device

The invention relates to a chain shortening device which consists of a preformed part which can be fastened to a chain, of a lifting device for example, which part comprises a pocket to receive a chain link which is parallel to the plane of the preformed part, and also a slot which passes longitudinally into the pocket to form an engagement slot for the following chain link which is directed transversely to the plane of the preformed part, and a leaf spring mounted on the preformed part which has a projecting catch at the free end which, when the chain link is pushed into the pocket, is situated between the flanks of the adjacent chain links situated before and after the inserted chain link.

A chain shortening device of this kind is known from the state of the art.

The chain shortening device is usually connected to a shackle, which in turn is situated on a connecting part of a one-strand or multi-strand chain hanging attachment.

The chain which hangs freely from it can be shortened by manually inserting a chain link which is situated at a considerable distance from the chain shortening device into the receiving pocket of the preformed part, as a result of which this chain link is then directed substantially parallel to the plane of the preformed part. The following chain link, in the direction in which the chain hangs, engages in the slot provided in the pocket, in an orientation turned through 90°, so that the rest of the chain after this can hang freely from the chain shortening device. In order to securely position the inserted chain link, a leaf spring is provided the projecting catch of which is located in the space between two chain links which are perpendicular to the plane of the preformed part and which are connected in the chain in front of and behind the chain link situated in the pocket.

A disadvantage of this known chain shortening device is that this must be permanently installed, and usually at the upper fastening point of a chain suspended from a ring or the like, so that to use the chain shortening device the entire hanging attachment must be lowered each time, or an operator must, by suitable means such as a ladder, get near to the chain shortening device which is situated high up.

Subsequent repositioning of this chain shortening element is possible only with a considerable fitting expense.

Starting from this state of the art, the object of the invention is to provide a chain shortening device of this general kind which can subsequently be easily and without cost fitted at a chosen place on a chain and is well adapted for use.

In order to achieve this objective the invention proposes that the preformed part comprises a pocket at each end which pockets are arranged in mirror-image fashion to each other, each with a longitudinal slot, in that the leaf spring is a double-leg spring which extends over approximately the entire length of the preformed part and is arranged with the projecting catches formed at both its ends projecting into the slots and is shaped approximately in the middle of its length into a bearing loop through which a bolt mounted in the preformed part passes.

As a result of this construction it is possible for the preformed part first to be pushed with the pocket which is uppermost in the operating direction onto a chosen chain link of the chain to be fitted with the preformed part and subsequently another chain link can be pushed into the lower pocket, thus shortening the chain, and these chain links are additionally secured in position by means of the double-leg spring.

In this way it is possible to equip existing chains very easily with such chain shortening devices, and the fitting and dismantling involved is also extremely simple.

An advantageous further development is that the preformed part comprises a longitudinal hollowed-out portion to receive the spring, which hollow is continuous with the longitudinal slots in the pocket regions and comprises a recess in the middle to receive the bearing loop of the spring, and the bolt which passes through the bearing loop passes through the cheeks of the preformed part built in this way.

In this way the double-leg spring is advantageously securely held and protected from damage without the action of the chain shortening device being in any way deleteriously affected thereby.

An example of an embodiment of the invention is shown in the Figures and is described in more detail in the following.

Figure 1 shows a chain shortening device in front view ;

Figure 2 shows the same in side view ;

Figure 3 shows the same in rear view ; and

Figure 4 shows the device in cross-section.

The chain shortening device consists substantially of a preformed part 2 fastened to a customary linked chain 1 of a lifting device, which preformed part comprises a pocket 3 at each of its upper and lower ends, in the direction of suspension of the chain, which pockets are made in mirror-image fashion with openings facing each other.

Each pocket 3 in addition comprises a longitudinal slot 4. A chain link orientated parallel to the plane of the preformed part, for example chain link 5, can be pushed into each pocket 3, whereby the chain link which follows in the longitudinal direction, e.g. link 6, engages in the slot 4, which chain link 6 is arranged rotated through 90° relative to chain link 5. In the preformed part 2 there is a leaf spring 7 with projecting catches 8 arranged at both free ends, which projecting

catches, when the chain link 5 is pushed into the pocket, are situated between the flanks of the chain links 6 and 6a which are situated respectively in front of and behind chain link 5, in the direction in which the link is pushed in, and so form a resilient catch to position the chain securely. The part of the chain which is situated between the chain links 5 can have any chosen length corresponding to the desired shortening.

In Figure 1 of the drawings the part of the chain which is situated between these chain links is shown displaced sideways in order to make the drawing clearer. Naturally, this shortened part of the chain normally hangs vertically in alignment with the remainder of the chain below.

The leaf spring 7 extends over almost the entire length of the preformed part 2 and comprises in the middle of its longitudinal extent a bearing loop 9 formed in it, through which loop passes a bolt 10 which is held in the preformed part. The bolt can, for example, be a split pin or a heavy duty dowel pin.

The preformed part comprises a longitudinal hollowed-out portion to receive the leaf spring 7 which hollow is continuous with the longitudinal slots 4 in the pocket 3 regions and comprises in the middle a recess 11 to receive the bearing loop 9 of the leaf spring 7.

The bolt 10 which passes through the bearing loop 9 passes through the cheeks of the preformed part 2 which are formed in this way.

The construction in accordance with the invention makes it possible to fit the device subsequently on a chain onto which, first of all, the pocket 3 which is at the top in the drawing is pushed over an appropriate chain link 5, whereby the projecting catch 8 presses against the flank of the chain link 6 and so contributes to its fixing in position in the preformed part.

Subsequently the chain can be shortened to a chosen extent and the appropriate other chain link 5 can be pushed into the pocket 3 which is situated below, whereupon the projecting catch 8 of the leaf spring 7 in its turn presses against the flank of the chain link 8. On pushing the chain links 5 in the pockets 3 each projecting catch 8 recedes slightly until it can spring out again into the space formed between the chain links 6 and 8.

Removal of the device can similarly be performed in a reversed manner.

The invention is not limited to the embodiment example described but can be altered in many ways within the scope of the invention as claimed.

CLAIMS

1. A chain shortening device which consists of a preformed part which can be fastened to a chain, of a lifting device for example, which part comprises a pocket to receive a chain link which is parallel to the plane of the preformed part, and also a slot which passes longitudinally into the pocket to form an engagement slot for the following chain link which is directed transversely to the plane of the preformed part, and a leaf spring mounted on the preformed part which has a projecting catch at the free end which, when the chain link is pushed into the pocket, is situated between the flanks of the adjacent chain links situated before and after the inserted chain link, characterized in that the preformed part (2) comprises a pocket (3) at each end which pockets are arranged in mirror-image fashion to each other, each with a longitudinal slot (4), in that the leaf spring (7) is a double-leg spring which extends over approximately the entire length of the preformed part (2) and is arranged with the projecting catches (8) formed at both its ends projecting into the slots (4) and is shaped approximately in the middle of its length into a bearing loop (9) through which a bolt (10) mounted in the preformed part (2) passes.

2. A device according to claim 1, characterized in that the preformed part (2) comprises a longitudinal hollowed out portion to receive the spring (7), which hollow is continuous with the longitudinal slots (4) in the pocket (3) regions and comprises a recess (11) in the middle to receive the bearing loop (9) of the spring (7), and wherein the bolt (10) which passes through the bearing loop (9) passes through the cheeks of the preformed part (2) which are formed in this way.

3. A chain shortening device substantially as described herein with reference to the accompanying drawings.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:



BLACK BORDERS



IMAGE CUT OFF AT TOP, BOTTOM OR SIDES



FADED TEXT OR DRAWING



BLURRED OR ILLEGIBLE TEXT OR DRAWING



SKEWED/SLANTED IMAGES



COLOR OR BLACK AND WHITE PHOTOGRAPHS



GRAY SCALE DOCUMENTS



LINES OR MARKS ON ORIGINAL DOCUMENT



REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY



OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.